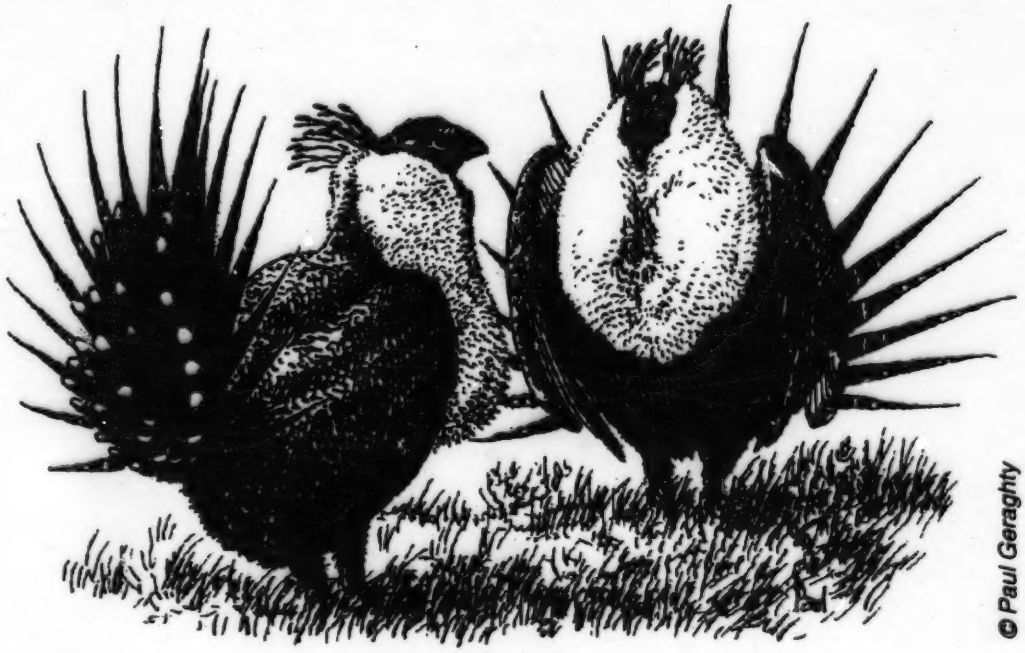
SASKATCHEWAN

Sage Grouse

(Centrocercus urophasianus)

Status: Endangered

Species at Risk



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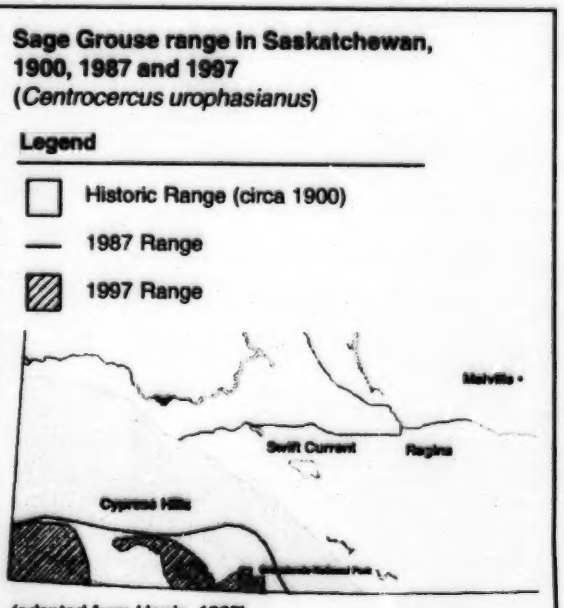
Description

Sage Grouse, also called Sage Hens, are Saskatchewan's largest grouse. Males and females are greyish in colour with white chests, a black patch on their bellies, and buff and black markings on their head, back, wing and tail feathers. Their tails are long and pointed. During mating season, the males display by inflating two large, yellowy-green throat sacs. These air sacs, or nuchal sacs, are normally hidden by white breast feathers.

Canadian Sage Grouse are heavier than those found further south, probably as a special adaptation to our harsher winter climate. Females (hens) are between 48 to 58 centimeters long, and weigh slightly over one kilogram. Males (cocks) are heavier, usually between 65 to 75 centimeters long, and between two and three kilograms. Sage Grouse lose weight during breeding season due to the high expenditure of energy.

Sage Grouse range in Saskatchewan, 1900, 1987 and 1997
(*Centrocercus urophasianus*)



(adapted from Harris, 1997)

Status

Sage Grouse are listed as an endangered

species in Saskatchewan in the *Wild Species at Risk Regulations* (1999). They are legally protected on private, provincial and federal lands under part V of *The Wildlife Act*. First listed in 1987 as threatened in Saskatchewan, there was a sharp population decrease of 90 per cent over the next ten years. In 1998, Sage Grouse were listed as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

In 1987 to 1988, the Sage Grouse population in Saskatchewan was estimated to be between 2,000 to 3,000 adult birds. There were 44 active leks. By 1997, the adult population had dropped to about 250 birds. In the 1999 spring lek count, the adult Sage Grouse population had increased to an estimated 500 to 600 birds, with 12 active leks.

In 1900, approximately 10,000 Sage Grouse ranged from Saskatchewan Landing in the north, to Big Muddy in the east. Today, Sage Grouse are only found in the remaining Silver Sagebrush habitat areas near Govenlock, close to the Alberta border, in the Frenchman River Valley, and near Wood Mountain. Portions of these two eastern locations receive protection in Grasslands National Park (GNP).

Throughout North America, Sage Grouse are found in Alberta, Saskatchewan, Montana, North Dakota, South Dakota, Wyoming, Colorado, Idaho, Utah, Oregon, Washington, Nevada, and California. Sage Grouse are extirpated in British Columbia, Nebraska, New Mexico, and Oklahoma. In 1998, the estimated range-wide population was 157,000 birds. Canada's population of Sage Grouse is about one per cent of the total North American population.

Life Cycle

In Saskatchewan, Sage Grouse are on the northern edge of their North American range. They live here year round in the short grass prairie, but only in Silver Sagebrush (*Artemisia cana*) habitat.

Leks or *Strutting Grounds*

By late February or early March, the males start gathering at their traditional leks, or strutting grounds. Lekking activity usually starts one hour before sunrise, and again at dusk. The males fan up their tails, and hold their wings rigidly by their sides pointed down. They rapidly fill up and let out the air in their nuchal sacs, making a popping sound which can be heard up to one kilometer away. The males fight to establish a territory. The dominant males usually win the largest central area of the lek. The few male guard birds for the dominant male generally occupy the rest of the central territory.

While the male Sage Grouse will strut at the leks from March to early June, the females arrive during April to mid May. The hens usually stay at the leks for two to three days while they choose one of the males, then mate. About 90 per cent of the hens mate with the few dominant males. Then, they move out to the nearby sage flats to find a good nesting place.

Leks are found in flat, open areas, where the strutting of the male birds is easily seen by the females. Leks are often located near coulees and creek bottoms, and are surrounded by sage brush flats where the females will nest.

Nests

Sometimes, the hens have to go more than four and a half kilometers away from the lek to find a patch of Silver Sagebrush dense enough to protect the nest and eggs from predators. Hens usually return to the same general area where they have nested before. Nearby water or wet meadows offer young chicks the best quality food. The hen scoops out a shallow nest on the ground and lines it with grass and sage leaves.

Eggs and Incubation

The hen lays between four and 15 olive-coloured, brown-speckled eggs that blend in with the surroundings. The usual clutch size (the number of eggs) is about eight. The clutch size and the health of the chicks is directly related to the quality and quantity of food eaten by the hen during the winter.

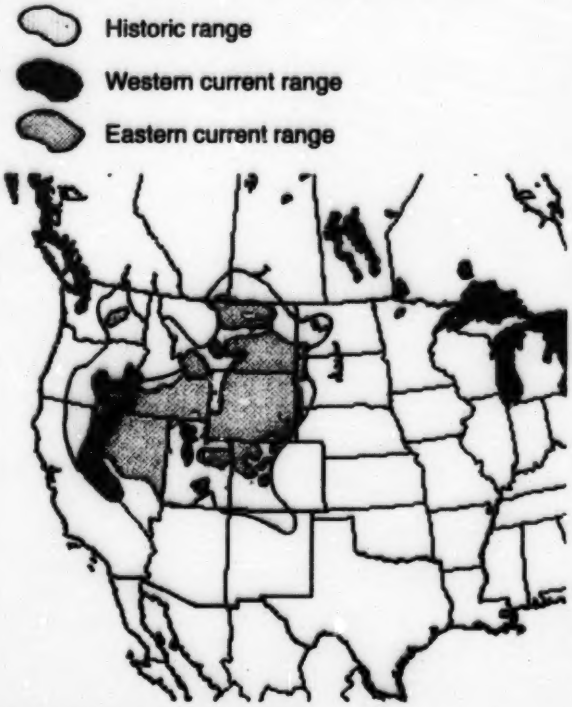
It usually takes 37 days from the time the first egg is laid until the eggs hatch. The hen will try to scare away predators by running at them while flapping her wings and cackling. As many as 60 per cent of first nests are destroyed. If so, the hen will mate again and re-nest, laying fewer eggs.

Chicks

Most chicks hatch during the first two weeks of June. Within an hour, they can run around and find their own food. Moist, wet meadows provide more insects, a high source of protein,

Sage Grouse range in Saskatchewan, 1999
(Centrocercus urophasianus)

LEGEND



(adapted from Prescott, 1997)

and thus a higher quality food than drier areas. Chick survival improves with high quality food. For the first 12 weeks, the chicks' favourite foods are ants, beetles, and grasshoppers. By about 10 weeks old, the young Sage Grouse are on their own.

Winter Survival
During the fall and winter, the Sage Grouse are completely dependent on dense sagebrush for cover and food. Over winter, Sage Grouse eat only the leaves and buds of the sagebrush that show above the snow. In heavy snow years, much of this shorter Canadian Silver Sagebrush may be buried. Sage Grouse prefer the sides of coulees with a south-westerly exposure, because the wind blows the deep snow away and the sun helps melt snow, exposing the sagebrush on which the Sage Grouse rely. They must have enough sagebrush to eat during the winter months in order to survive and have enough energy (body fat) for breeding in the spring. Loss or degradation of this critical winter habitat greatly reduces their chances of survival.

Sage Grouse also make snow roosts to survive extremely harsh winter weather. Birds will burrow into the deep snow. The body heat melts a little warm cave in the snow, where the temperature may be up to 23 degrees centigrade warmer than the outside winter air. Snow roosts also keep birds hidden from predators.

Only 43 per cent of females, 33 per cent of males, and 18 per cent of yearlings survive our winters. For the Sage Grouse to continue to exist in Saskatchewan, enough chicks must survive the winter to replace the adults that die. Since the Saskatchewan population consists of less than 1000 birds, it remains vulnerable to extirpation (no longer found in Saskatchewan, but still found elsewhere).

Limiting Factors and Recovery Needs

There has been considerable effort recently to research the factors causing the decline in the Sage Grouse population during the decade 1988 to 1998. A detailed analysis of the research, and recommendations for recovery actions, have been identified by the Sage Grouse Recovery Team in the draft document, *Sage Grouse Recovery Strategies*, January 2000. The recovery team is composed of members representing the stakeholders, including the oil and gas industry, stock growers, wildlife organizations, agricultural producers, provincial and federal government agencies, and Parks Canada.

Here are some of the major factors affecting Sage Grouse survival in Saskatchewan.

Habitat loss, as well as habitat fragmentation and change may be the biggest threats to Sage Grouse survival. Limited legislation protects the Silver Sagebrush habitat upon which the Sage Grouse depend. A large portion of the Sage Grouse range receives partial protection under *The Wildlife Habitat Protection Act* (WHPA). This act protects the sagebrush flats from being broken to agricultural use, but does not preclude oil and gas exploration and development. Wells are limited to four per quarter section.

Sage Grouse can live alongside grazing livestock. However, where cattle are overstocked on a pasture, they will overgraze the grass, the succulent forbs, and the tops of the sagebrush. With less food and cover, the hens and chicks are more vulnerable to predators, starvation, and freezing.

To protect the critical Silver Sagebrush habitat, stocking needs to be carefully monitored in pastures with Sage Grouse. Increased taxation on native pastures since 1997 has created economic pressure for producers to increase stocking levels. Agricultural and taxation policies which are detrimental to maintaining Sage Grouse habitat need to be reviewed.

Human noise and activities can scare away the Sage Grouse on the strutting grounds. If the Sage Grouse are disturbed too often, they may abandon the lek, and there will be no breeding that year. Similarly, nests also have to be protected from disturbance. Hunting dog training and bird watchers coming too close to leks in spring can cause disturbances. Recently, disturbances have also been caused by oil and gas exploration, by building pipelines and power lines, and by the operation of pumpjacks on producing wells.

Another threat to survival is the increase of roads being built across the sagebrush range. Trucks and heavy equipment travel to and from the gas and oil development sites. Farm equipment moves from one field to another. Birds are being hit by vehicles as they cross the road to get from one part of their habitat to another.

Suggested actions to help Sage Grouse population recovery include putting caps on power poles to discourage eagles, burying power lines, gating infrequently used roads, seeding abandoned roads back to native grass, and using solar energy to power remote pipeline compressor stations.

To protect the Sage Grouse from disturbances, Saskatchewan Environment and Resource Management restricts development activities between March 15th and June 15th in Sage Grouse habitat. For more information on restrictions, please contact the Saskatchewan Conservation Data Centre at **www.biodiversity.sk.ca** or see the full text of this article at **www.serm.gov.sk.ca/ecosystem/speciesatrisk**.

Harsh weather impacts Sage Grouse in several stages of their life cycle. If the snow is too deep, such as in the winter of 1996-97, sagebrush will be buried by snow. If the birds cannot get enough to eat, some will starve and others will not have enough fat reserves to allow spring breeding. This weather event is thought to be the cause of the low lek count of 250 birds in the spring of 1997.

Lack of cover during an extremely harsh winter may cause some birds to freeze to death. In extremely cold spring weather or a late spring snow storm, the eggs may freeze. When there is a summer drought, there may not be enough sagebrush for food over the winter. Climate changes may also lead to the loss of the Silver Sagebrush plant community.

Predators eat Sage Grouse and their eggs. Golden Eagles

may take adult birds on the leks or even a hen on her nest, if the sagebrush is too sparse to hide the nest. The hen and chicks are also vulnerable when they are feeding in open meadows and near creeks. Recently installed power lines provide more perches for eagles and hawks to spot Sage Grouse.

Other Sage Grouse predators include raccoons and badgers who will eat the eggs. It is thought that coyotes, the Red Fox and, maybe, the recently re-introduced Swift Fox (*Vulpes velox*) may be hunting more Sage Grouse due to lack of other prey species.

Ecotourism is another direct disturbance to Sage Grouse. In Grasslands National Park, increasing numbers of ecotourists are visiting the lek and nest sites for birdwatching and photography. It is important that tour leaders co-operate with the park staff to reduce disturbance to the Sage Grouse during the breeding season. The park also provides protection for this remaining area of native grassland from gas and oil development.

Recovery Actions

Actions to date:

- population monitoring 1987-1988, 1994 to present and on-going;
- *The Wildlife Habitat Protection Act* prevents native grasslands from being broken to tame grass for hay or pasture;
- Prairie Farm Rehabilitation Administration (PFRA) (federal) pastures are part of the Representative Areas Network and breaking native grassland is prevented;
- Saskatchewan Agriculture and Food (SAF) protects the native grassland used by Sage Grouse in their community pastures;
- habitat areas in the Frenchman River valley and Killdeer Badlands have been included in the boundaries of Grasslands National Park; oil and gas exploration rights have been extinguished within the park boundaries;
- research into the reproductive success, survival, and habitat selection and availability has been in progress since 1997;
- Sage Grouse were legally listed as an Endangered Species in Saskatchewan in 1999;
- a national Sage Grouse Recovery Team was established in 1998;
- the draft Sage Grouse Recovery Strategies document was circulated in January 2000; and
- new guidelines for industry and ecotourism are in the process of being finalized.

The recovery goal is a self-sustaining population that is neither endangered or threatened. In Saskatchewan, this is estimated to be 500 males in the spring count, and an increase to 30 active leks.

Sage Grouse evolved with the plains bison and the native grassland ecosystem. Their decline is an indicator of the loss of native plants and other wildlife which were once part of this ecosystem. More work needs to be done to raise awareness about the threats to the survival of the Sage Grouse in Saskatchewan. Conservation groups, wildlife agencies, landowners, industry, ecotourists, and the general public all have a part to play in protecting both the Sage Grouse and its Silver Sagebrush habitat for the benefit of future generations.

If you are a landowner and have Sage Grouse on your land, this indicates that you have been a good steward of the native prairie. You may want to protect the Sage Grouse habitat and receive some financial considerations through the Saskatchewan Conservation Easement program. For more information about this program where you can protect endangered species and habitat while retaining title to your land, go to http://www.serm.gov.sk.ca/ecosystem/conservationeasements.php

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Selected References

Please contact your local library, or the publishers of the documents listed below, if you wish to research the Sage Grouse in more detail.

Aldridge, C. L. 1998. Status of the Sage Grouse (*Centrocercus urophasianus urophasianus*) in Alberta. Alberta Environmental Protection, Wildlife Management Division, and Alberta Conservation Association, Wildlife Status Report No. 13, Edmonton, AB. 23 pp.

Aldridge, C. L. 1999. Reproductive ecology of Sage Grouse in Canada. Unpubl. Report. Prepared for the 1999 Sage Grouse Funding Partners. Department of Biology, University of Regina, Regina, SK. 38 pp.

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Saskatchewan Environment and Resource Management

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